

01



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/680,729

10/07/2003

Jeffry S. Bennin

17310-293732

5303

25764

7590

09/19/2006

FAEGRE & BENSON LLP
 PATENT DOCKETING
 2200 WELLS FARGO CENTER
 90 SOUTH SEVENTH STREET
 MINNEAPOLIS, MN 55402

EXAMINER

WATKO, JULIE ANNE

ART UNIT

PAPER NUMBER

2627

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/680,729

Applicant(s)

BENNIN ET AL.

Examiner

Julie Anne Watko

Art Unit

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 7-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-6 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01/07/2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/05/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group I, claims 1-22, is acknowledged.

Applicant's election without traverse of species A, claims 1-6, is acknowledged.

Drawings

2. The drawings are objected to because the numbering of the figures is improper. For example, the application contains both "FIGURE 8" and "FIGURE 8a". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

4. Claim 6 is objected to because of the following informalities:

Claim 6 recites the limitation “apertures are formed in the head suspension” in line 1. It is unclear whether this limitation refers to “an aperture” of claim 1, line 12, or to a distinct, additional aperture. For examination purposes, the Examiner will interpret this limitation as referring to the aperture of claim 1.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation “the other of the first and second electrical connections” in lines 1-2. There is insufficient antecedent basis for this limitation in the claims.

7. Regarding claim 3: In the absence of a reasonably definite interpretation of a claim, it is improper to rely on speculative assumptions regarding the meaning of a claim and then base a rejection under 35 U.S.C. 103 on these assumptions (*In re Steele*, 305 F.2d 859, 134 USPQ 292

Art Unit: 2627

(CCPA 1962)). See MPEP 2143.03. Claim 3 will be further examined at such time as its metes and bounds become reasonably clear and definite.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1 and 5-6 are rejected under 35 U.S.C. 102(e) as being anticipated by Watanabe et al (US Pat. No. 6791802 B2).

As recited in claim 1, Watanabe et al show apparatus (see especially Figs. 2-3) for mechanically mounting and electrically insulating a piezoelectric element (12 or 13, for example) on a head suspension 10 comprising:

a. an electrically conductive substrate 11 having a primary plane (arbitrarily select an upper or lower plane of 11 in Fig. 3) and forming a part of the head suspension 10;

b. a piezoelectric element 12 having first and second parallel major surfaces that are generally planar and located parallel to the primary plane; and

c. an electrically insulating layer 15 between the substrate and the piezoelectric element; wherein the first major surface (lower surface in Fig. 3) of the piezoelectric element faces toward the substrate and the second major surface (upper surface in Fig. 3) of the piezoelectric element faces away from the substrate and wherein the substrate 11e has an aperture aligned with a portion of the piezoelectric element and the electrically insulating layer 15 has a void (see Fig. 3)

Art Unit: 2627

aligned with the aperture to provide access for electrical connection (see 14b) to the first major (lower) surface of the piezoelectric element 12 through the aperture 11e and void.

Regarding claim 5: The product by process limitations in these claims are directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessman*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); *In re Marosi et al*, 218 USPQ 289; and particularly *In re Thorpe*, 227 USPQ 964, all of which make it clear that it is the patentability of the final structure of the product “gleaned” from the process limitations or steps, which must be determined in a “product by process” claim, and not the patentability of the process limitations. Moreover, an old or obvious product produced by a new method is not a patentable product, whether claimed in “product by process” claims or not. Note that the applicant has the burden of proof in such cases, as the above case law makes clear.

As recited in claim 6, Watanabe et al show aperture 11e formed in the head suspension in alignment with at least one of the piezoelectric motors 12 that would otherwise be substantially inaccessible (see Fig. 3) for such electrical connection 14b.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2627

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe et al (US Pat. No. 6791802 B2).

Watanabe et al show an apparatus as described above for claims 1 and 5-6.

As recited in claim 4, Watanabe et al are silent regarding whether the at least one of the piezoelectric motors is located on one of a first and second major surface of the head suspension.

There is no invention in relocating known parts, when the functioning of the apparatus is not changed by the relocation. In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to arrive at the claimed part location in the course of routine experimentation, optimization, and design choice. The rationale is as follows: one of ordinary skill in the art would have been motivated to arrive at the claimed part location in order to eliminate a step of etching notches 11f and 11g in the load beam, so as to simplify manufacturing and to protect the environment by reducing use of corrosive etchants as is known in the art.

Allowable Subject Matter

13. Claim 2 is allowed.

14. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither shows nor suggests at least one piezoelectric motor on a disk drive head suspension wherein the piezoelectric motor is electrically insulated from all metallic structural parts of the head suspension.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nakagawa (US Pat. No. 6791783 B2) shows a suspension with piezoelectric element 13 grounded to load beam 11 via electrically conductive adhesive resin 15 (see especially Figs. 3-4).

Kuwajima et al (US PAP No. 20040136117 A1) show a piezoelectric element (see Fig. 2; see especially ¶ 0066, “ when a positive potential is applied to the wiring connection part 181 and a negative potential to the wiring connection part 182 from the driving power source 3, the first principal electrode film 440 and second principal electrode film 540 of the first piezoelectric element unit 27A are at a positive potential, and the first principal electrode film 580 and second principal electrode film 600 of the second piezoelectric element unit 27B are at a negative potential. Further, positive and negative electrodes are induced in the first counter electrode film 480 and second counter electrode film 500 commonly connected to the first piezoelectric element unit 27A and the second piezoelectric element unit 27B by way of the bonding-region A, and cancel each other such that the potential is kept at zero. This has been confirmed by experiment. Accordingly, only by applying voltages to two wiring connection parts 181, 182, for

Art Unit: 2627

example, the first piezoelectric thin film 460 and second piezoelectric thin film 520 of the first piezoelectric element unit 27A are contracted, and the first piezoelectric thin film 460 and second piezoelectric thin film 520 of the second piezoelectric element unit 27B are extended. Therefore, the displacement of the first piezoelectric element unit 27A and second piezoelectric element unit 27B occurs in reverse parallel directions. As a result, the flexure 4 to which the thin film piezoelectric element 27 is fixed is also deformed, and the head slider 43 rotates as indicated by arrow C, and the magnetic head 21 on the head slider 43 can be moved finely.”)

Fujiwara et al (US PAP No. 20020080532 A1) show a suspension comprising piezoelectric element 40 with conductive member 63 leading to terminal 64 (see Fig. 4) and silver paste 62 grounding electrode 60 of the piezoelectric element 40 to a base plate 13.

16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Anne Watko whose telephone number is (571) 272-7597. The examiner can normally be reached on Monday through Friday, 1PM to 10PM.

Art Unit: 2627

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne D. Bost can be reached on (571) 272-7023. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Julie Anne Watko, J.D.
Primary Examiner
Art Unit 2627

September 14, 2006
JAW

A handwritten signature in black ink, appearing to read 'Julie Anne Watko', with a stylized, elongated flourish extending to the right.